Permit Modification Fact Sheet

General Information

Permit Number:	WI-0051128-07-1
Permittee Name:	BelGioioso Cheese Inc
Address:	4200 Main Street
City/State/Zip:	Green Bay WI 54311
Discharge Location:	5850 County Road NN, Denmark, WI 54208 (NE, SE, SE, Section 24, Town of Glenmore, Brown County) and approved landspreading sites and storage facilities located in Brown, Kewaunee, and Manitowoc counties
Receiving Water:	An unnamed tributary of the Devils River located in the West Twin River Watershed (TK01) of the Northeast Lakeshore Basin and groundwater of various watersheds in Brown, Kewaunee, and Manitowoc counties via land application
Stream Flow ($Q_{7,10}$):	0 cfs
Stream Classification:	Limited Aquatic Life (LAL), non-public water supply

Facility Description

BelGioioso Cheese Inc. is an Italian cheese processor. The BelGioioso Cheese Inc. Denmark wastewater treatment plant, located at 5850 County Road NN, Denmark, WI 54208, treats wastewater from the BelGioioso Glenmore, Denmark, and New Denmark production facilities. Noncontact cooling water (NCCW) from the Glenmore and Denmark facilities are also discharged under the BelGioioso Cheese Inc. Denmark permit. NCCW from New Denmark is covered under the NCCW general permit. Cheese produced at this facility includes mascarpone, mozzarella, and provolone cheeses. BelGioioso brings in approximately 3.2 million pounds of milk per day. Whey produced in the cheese making process is hauled to another BelGioioso facility for treatment and disposal.

Wastewater enters a baffled equalization tank and then onto a strainer. Pretreatment of the wastewater continues with a dissolved air flotation (DAF) unit and then flows into an anoxic selector tank. After the selector tank wastewater flows to an aeration basin and then onto a screen filter prior to the membrane filter. Solids produced at the membrane filter can be used as return activated sludge (RAS) or sent as waste activated sludge (WAS) to the DAF unit followed by the sludge tank. RAS may be sent to the aeration basin or the anoxic selector tank. NCCW is combined with the wastewater discharge prior to the outfall to the receiving water.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
005	Unchanged by permit modification	Land application of segregated high strength wastewater to Department approved sites and/or other methods of disposal. Representative samples shall be collected prior to landspreading on Department approved land application sites.
007	Unchanged by permit modification	Representative samples of noncontact cooling water combined with treated process wastewater shall be obtained prior to discharge to the creek.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
009	Unchanged by permit modification	Land application of wastewater treatment plant sludge to Department approved land application sites and/or other methods of disposal. Representative samples shall be collected prior to landspreading on Department approved land application sites or disposal.
010	Unchanged by permit modification	Land application of the combination of segregated high strength wastewater and wastewater treatment plant sludge to Department approved sites and/or other methods of disposal. Representative samples shall be collected prior to disposal or landspreading on Department approved land application sites.

1 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 007- NCCW & TREATED PROCESS WW

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Total Daily	
Temperature Maximum	Daily Max	86 deg F	3/Week	Continuous	
BOD5, Total	Daily Max	40 mg/L	3/Week	Flow Prop Comp	
BOD5, Total	Monthly Avg	20 mg/L	3/Week	Flow Prop Comp	
BOD5, Total	Daily Max	132 lbs/day	3/Week	Calculated	
BOD5, Total	Monthly Avg	66 lbs/day	3/Week	Calculated	
Suspended Solids, Total	Daily Max	40 mg/L	3/Week	Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	Flow Prop Comp	
Suspended Solids, Total	Daily Max	72 lbs/day	3/Week	Calculated	
Suspended Solids, Total	Monthly Avg	36 lbs/day	3/Week	Calculated	
pH Field	Daily Max	9.0 su	3/Week	Grab	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
pH Field	Daily Min	6.0 su	3/Week	Grab	
Chloride	Daily Max	620 mg/L	3/Week	Flow Prop Comp	
Chloride	Weekly Avg	400 mg/L	3/Week	Flow Prop Comp	
Chloride	Monthly Avg	400 mg/L	3/Week	Flow Prop Comp	
Chloride	Weekly Avg	1,600 lbs/day	3/Week	Calculated	
Phosphorus, Total	Monthly Avg	0.84 mg/L	3/Week	Flow Prop Comp	This is an interim limit. The final water quality based limits of 0.075 mg/L and 0.3 lbs/day as 6-month averages and 0.225 mg/L as a monthly average go into effect per Schedule 3.2.
Phosphorus, Total	Rolling 12 Month Avg	1.0 mg/L	3/Week	Flow Prop Comp	
Dissolved Oxygen		mg/L	Weekly	Grab	
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	See Table	Using the daily pH result look up the daily maximum variable ammonia limit in the table at Subsection 1.2.1.5 of the permit and enter on the DMR.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	3/Week	Flow Prop Comp	Limit effective June-September
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	10 mg/L	3/Week	Flow Prop Comp	Limit effective October-March
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	7.7 mg/L	3/Week	Flow Prop Comp	Limit effective April & May
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.9 mg/L	3/Week	Flow Prop Comp	Limit effective June-September
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.6 mg/L	3/Week	Flow Prop Comp	Limit effective October-March
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.8 mg/L	3/Week	Flow Prop Comp	Limit effective April & May

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Total Kjeldahl		mg/L	Quarterly	Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	

Changes from Previous Permit:

- Removal of Total Residual Chlorine (TRC) effluent monitoring and limits.

Explanation of Limits and Monitoring Requirements

Previously, BelGioioso had added chlorine to the potable water (well water) in the production plant to comply with the Food and Drug Administration (FDA) rule. The building's pipe configuration ties the drinking water lines with the noncontact cooling water (NCCW) lines. Therefore, chlorine used to treat drinking water had been discharged without treatment through the NCCW line to surface water Outfall 007.

BelGioioso ceased the addition of chlorine in the drinking water effective March 1, 2020, eliminating any reason for residual chlorine to be present in the effluent. BelGioioso now uses chlorine dioxide. This chemical addition is effective for potable water treatment and neutralizes in contact with UV light. The NCCW is combined with the treated process wastewater in the mixing manhole prior to discharge through Outfall 007. Residual chlorine in the process wastewater is neutralized in the aeration basin. Since the start of using chlorine dioxide and UV neutralization, residual chlorine has not been and is not expected to be present in the effluent.

Since the source of the residual chlorine in the effluent has been removed, TRC sampling has been removed and the limits that were set to become effective per the associated compliance schedule have also been removed. Additionally, the associated schedule was removed (see the Compliance Schedules section).

All other monitoring and limitations in this section remain unchanged by permit modification.

2 Land Application - Liquids/Sludge/By-Product Solids (industrial only)

Sample Point Number: 005- LANDSPREAD LIQUIDS

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chloride		mg/L	Monthly	Grab	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Phosphorus, Total		mg/L	Quarterly	Grab	
Solids, Total		Percent	Annual	Grab	

Changes from Previous Permit:

Unchanged by permit modification.

Explanation of Limits and Monitoring Requirements

Unchanged by permit modification.

Sample Point Number: 009- WWTP SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	Dry weight
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	Dry weight
Chloride		Percent	Annual	Composite	Dry weight
pH Field		su	Annual	Composite	
Nitrogen, Ammonia (NH3-N) Total		Percent	Annual	Composite	
Nitrogen, Organic Total		Percent	Annual	Composite	Dry weight
Phosphorus, Total		Percent	Annual	Composite	Dry weight
Potassium, Total Recoverable		Percent	Annual	Composite	Dry weight
Lead Dry Wt		mg/kg	Annual	Composite	
Zinc Dry Wt		mg/kg	Annual	Composite	
Copper Dry Wt		mg/kg	Annual	Composite	
Cadmium Dry Wt		mg/kg	Annual	Composite	
Nickel Dry Wt		mg/kg	Annual	Composite	

Changes from Previous Permit:

Unchanged by permit modification.

Explanation of Limits and Monitoring Requirements

Unchanged by permit modification.

Sample Point Number: 010- High Strength and WWTP Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Monthly	Grab	
Nitrogen, Total Kjeldahl		Percent	Monthly	Grab	
Chloride		Percent	Monthly	Grab	
pH Field		su	Monthly	Grab	
Nitrogen, Ammonium (NH4-N) Total		Percent	Monthly	Grab	
Nitrogen, Organic Total		Percent	Monthly	Grab	
Phosphorus, Total		Percent	Monthly	Grab	
Phosphorus, Water Extractable		% of Tot P	Monthly	Grab	
Potassium, Total Recoverable		Percent	Monthly	Grab	
Lead Dry Wt		mg/kg	Annual	Composite	
Zinc Dry Wt		mg/kg	Annual	Composite	
Copper Dry Wt		mg/kg	Annual	Composite	
Cadmium Dry Wt		mg/kg	Annual	Composite	
Nickel Dry Wt		mg/kg	Annual	Composite	

Changes from Previous Permit:

Unchanged by permit modification.

Explanation of Limits and Monitoring Requirements

Unchanged by permit modification.

3 Compliance Schedules

3.1 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

Required Action	Due Date
Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in phosphorus discharges from the treatment plant during the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by October 1, 2023. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than October 1, 2023 and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report. If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by October 1, 2023 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance'). STUDY OF FEASIBLE ALTERNATIVES - If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final phosphorus WQBELs sooner than October 1, 2029.	09/30/2021
Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.	09/30/2022
Preliminary Compliance Alternatives Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee’s wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report. If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan. If water quality trading will be undertaken, the plan must state that trading will be pursued.	09/30/2023
Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee’s wastewater treatment is necessary to meet final	09/30/2024

phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110, Wis. Adm. Code. If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code. If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	
Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	09/30/2025
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.) Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	09/30/2026
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2026
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2027
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2028
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	09/30/2029
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	10/01/2029

Explanation of Compliance Schedules

The Total Residual Chlorine Limits Compliance schedule has been removed. Total Residual Chlorine monitoring and associated limits have been removed, as such, the schedule no longer applies. The Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus schedule remains unchanged by permit modification.

Proposed Expiration Date:

September 30, 2025 (unchanged by permit modification)

Prepared By: Sarah Donoughe, Wastewater Specialist

Date: December 2, 2021